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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/783,149 | 02/15/2001 | Yang-lim Choi | Q61835 | 1522 |
| 23373 | 7590 | 06/02/2004 | EXAMINER | |
| SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037 | | | EHICHOYA, FRED I | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2172 | |

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-------------------|--------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/783,149 | CHOI ET AL. |
| | Examiner | Art Unit |
| | Fred I. Ehichioya | 2172 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on (*telephonic interview*) 04/29/2004.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1 - 9 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1 and 2 is/are rejected.

7) Claim(s) 3 - 9 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. 04/29/2004.

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicants' arguments, with respect to claims 1 – 9 filed January 28, 2004 have been fully considered but they are not persuasive for the reasons set forth herein below.

Applicants argue: "even if the teachings of Ganapathy and Barbara are combined, it does not suggest performing a similarity measurement and then applying search conditions limited by the search results, followed by performing a changed similarity measurement" (page 4; par. 3).

Examiner respectfully disagrees with all of the allegations as argued. Examiner, in his previous office action, gave detail explanation of claimed limitation and pointed out exact locations in the cited prior art.

Regarding applicants' argument: Ganapathy teaches performing a changed similarity measurement on the given query vector (column 16, line 66 through column 17, line 2 – 35, "Fig.1 also shows similarity measurement"). Ganapathy discloses applying search conditions (column 17, lines 45 – 67 and column 18, lines 1 – 20; the rules are the search conditions). It is apparent that Ganapathy teaches performing a changed similarity measurement (see column 16, line 66 through column 17, line 5, similarity measure is performed on different changed pattern).

2. In view of the above, the examiner contends that all limitations as recited in the claims have been addressed in this Action. For the above reasons, Examiner believed that rejection of the last Office action was proper.

Claim objections

3. Claims 3 - 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.

Patent 6,411,953 issued to Ganapathy et al. (hereinafter "Ganapathy").

Regarding claim 1, Ganapathy teaches a method for adaptively searching a feature vector space, the method comprising the steps of:

(a) performing a similarity measurement ("performs similarity measurements", column 16, line 67 – column 17, line 1) on a given query vector ("query vector", column 11, line 1), within the feature vector space ("feature vector", column 18, line 14); and

(b) applying search conditions (column 17, line 45 thru column 18, line 20, "The similarity measurement component 14 finds similar patterns using the rules from the grammar G. The similarity measurement component 14 accesses an image database 30, and includes a similarity judging block 32. Given an input image A, which may be submitted or selected as part of a user query Q, for a designated set of the images in the database 30, rules R.sub.1 through R.sub.4 are applied and corresponding distance measures are computed", column 8, lines 59 – 67) limited by the result ("a set of best matches is found", column 9, line 2) of the similarity measurement ("similarity measurement component 14", column 8, line 61) obtained in the step (a) and performing a changed similarity measurement on the given query vector (see column 11, lines 2 – 35; column 12, lines 21 – 26; column 15, lines 14 – 55; column 16, lines 66 – 57 and column 17, lines 1 – 5).

Ganapathy does not specifically teach the claim limitations "performing a changed similarity measurement on the given query vector"; but referring to the following cited

columns and lines (column 8, lines 59 – 67, column 11, lines 2 – 35; column 12, lines 21 – 26; column 15, lines 14 – 55; column 16, lines 66 – 57 and column 17, lines 1 – 5), it is apparent that Ganapathy suggest performing a changed similarity measurement. It would have been obvious to one of ordinary skill in the art that “the formulation of a query vector to search for a lighter color” and “the same pattern at different scales will have similar feature vectors” provide a clear suggestion of performing a changed similarity measurement. “The similarity between A and B is measured in terms of that color using the minimum of distance measures between the color element” (column 12, lines 44 – 46). The motivation is that even if the difference between the two area percentages is very large, the overall distance yields a measure that does not match human perception. This makes the search easy and efficient.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ganapathy in view of U.S. Patent 5,710,916 issued to Barbara et al (hereinafter “Barbara”).

Regarding claim 2, Ganapathy teaches (b) the steps of:

(b-1) obtaining a plurality of candidate approximation regions (“see column 11, lines 51 - 55)

Ganapathy does not explicitly teach performing an approximation level filtering according to a distance measurement limited by the result of the similarity measurement obtained in the step (a); and

(b-2) performing a data level filtering on said plurality of obtained candidate approximation regions.

Barbara teaches claimed performing an approximation level filtering according to a distance measurement limited ("A small number of elements that are at a greater distance than d may also be picked up when querying an FQ tree. These are filtered out by further processing", column 16, lines 46 – 48) by the result of the similarity measurement obtained in the step (a); and

(b-2) performing a data level filtering ("Although the search times for larger databases keep growing linearly with the database size, FQ-trees provide a significant reduction of search time with respect to sequential search. In this sense, FQ-trees act more like filters than indices, pruning a constant fraction of the database", column 17, lines 38 - 42) on said plurality of obtained candidate approximation regions.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified teaching of Ganapathy combine with the teaching of Barbara wherein performing a data level filtering according to a distance enables strings that do not match the input strings to be filtered out. This optimizes the query processing and allowing the desired data to be retrieved.

Conclusion

7. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

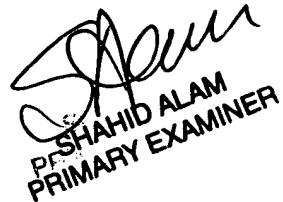
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred I. Ehichioya whose telephone number is 703-305-8039. The examiner can normally be reached on M - F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on 703-305-9790. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2172

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Fred I. Ehichioya
Examiner
Art Unit 2172
May 25, 2004



SHAHID ALAM
PRIMARY EXAMINER